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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,466	01/10/2002	Dennis J. Brunner	89190.079101/DP-305547	9887

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Delphi Technologies, Inc.
P.O. Box 5052
Mail Code 480414420
Troy, MI 48007

EXAMINER
FERGUSON, MICHAEL P

ART UNIT	PAPER NUMBER
3679	

DATE MAILED: 08/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/044,466	BRUNNER ET AL.	
	Examiner	Art Unit	
	Michael P. Ferguson	3679	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9 and 13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9 and 13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Morelli et al. (USPN 5,688,070).

As to claim 1, Morelli et al. discloses an apparatus for securing a hub to a shaft, comprising:

a) a cylindrical shaft **144** having a longitudinal keyway formed in an outer surface thereof, the keyway having a bottom surface;

b) a hub **164** having an axial bore defining a wall in the hub and being disposable on the shaft to define a maximum distance from the keyway bottom surface to the bore wall; and

c) a tapered locking key **56,171** (taper shown in Figure 4) for insertion into the keyway between the keyway bottom and the bore wall, the key having a pre-insertion maximum height greater than the maximum distance such that the hub is deformed by the insertion, whereby the hub is rotationally and axially secured onto the shaft (Figures 4-6h, column 1 lines 12-36, column 4 lines 9-39).

As to claim 2, Morelli et al. discloses an apparatus wherein a hub **164** is formed of a deformable polymer having a first hardness (column 4 lines 9-39).

As to claim 3, Morelli et al. discloses an apparatus wherein a key **171** is formed of metal (column 4 lines 9-39).

As to claim 4, Morelli et al. discloses an apparatus wherein a key **171** has a second hardness greater than a first hardness (column 4 lines 9-39).

As to claim 5, Morelli et al. discloses an apparatus wherein a locking key **171** is an end key in a chain of connected keys (inherently, through the manufacturing process, whether extrusion or casting, locking key **171** is severed from a mass of raw material from which a chain of keys is produced), the end key being severable from the chain (during the manufacturing process).

Applicant is reminded that process limitations are given no patentable weight in product claims. See MPEP § 2113. "The patentability of a product does not depend on its method of production. " In re Thorpe, 777 F.2d 695,698,USPQ 964,966 (Fed.Cir.1985).

As to claim 6, Morelli et al. discloses an apparatus wherein a shaft **144** is a throttle shaft and a hub **164** is a portion of a shaft rotary position sensor (Figures 5-6h).

As to claim 6, Morelli et al. discloses an apparatus wherein a shaft **144** is a throttle shaft (shaft **144** controls the speed at which other gears or members which are meshed with hub **164** rotate; thus shaft **144** defines a throttle shaft) and a hub **164** is a portion of a shaft rotary position sensor (other gears or members rotate in response to the rotary position of hub **164**; thus hub **164** defines a rotary position sensor).

As to claim 7, Morelli et al. discloses a method for securing a hub **164** having an axial bore defined by a bore wall onto a cylindrical shaft **144**, comprising the steps of:

a) providing a longitudinal keyway in the shaft, the keyway having a bottom surface;

b) disposing the axial bore of the hub onto the shaft to define a maximum distance between the keyway bottom surface and the bore wall;

c) providing a wedging means **171**; and

d) inserting the wedging means into the keyway between the keyway bottom surface and the bore wall (Figures 4-6h, column 1 lines 12-36, column 4 lines 9-39).

As to claim 8, Morelli et al. discloses a method wherein a wedging means **171** is a locking key having a maximum height greater than a maximum distance (Figures 4-6h).

As to claim 9, Morelli et al. discloses a method further comprising the step of advancing a locking key **171** into a keyway until the point of a maximum height is axially centered within a hub bore (Figures 4-6h).

3. Claims 1,2, 6-8 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Moldex Inc. (GB 2 066 927).

As to claim 1, Moldex Inc. discloses an apparatus for securing a hub to a shaft, comprising:

a) a cylindrical shaft **2** having a longitudinal keyway formed in an outer surface thereof, the keyway having a bottom surface;

b) a hub **8** having an axial bore defining a wall in the hub and being disposable on the shaft to define a maximum distance from the keyway bottom surface to the bore wall; and

c) a tapered locking key **16** (taper shown in Figure 2) for insertion into the keyway between the keyway bottom and the bore wall, the key having a pre-insertion maximum height greater than the maximum distance such that the hub is deformed by the insertion, whereby the hub is rotationally and axially secured onto the shaft (Figures 1-4, page 1 lines 59-62).

As to claim 2, Moldex Inc. discloses an apparatus wherein a hub **8** is formed of a deformable polymer having a first hardness (page 1 lines 94-98).

As to claim 6, Moldex Inc. discloses an apparatus wherein a shaft **2** is a throttle shaft (shaft **2** controls the speed at which other gears or members which are meshed with hub **8** rotate; thus shaft **2** defines a throttle shaft) and a hub **8** is a portion of a shaft rotary position sensor (other gears or members rotate in response to the rotary position of hub **8**; thus hub **8** defines a rotary position sensor; page 1 lines 94-108).

As to claim 7, Moldex Inc. discloses a method for securing a hub **8** having an axial bore defined by a bore wall onto a cylindrical shaft **2**, comprising the steps of:

a) providing a longitudinal keyway in the shaft, the keyway having a bottom surface;

b) disposing the axial bore of the hub onto the shaft to define a maximum distance between the keyway bottom surface and the bore wall;

c) providing a wedging means **16**; and

d) inserting the wedging means into the keyway between the keyway bottom surface and the bore wall (Figures 1-4, page 1 lines 59-62).

As to claim 8, Moldex Inc. discloses a method wherein a wedging means **16** is a locking key having a maximum height greater than a maximum distance (Figures 1-4).

As to claim 13, Moldex Inc. discloses an apparatus for securing a hub to a shaft, comprising:

a) a cylindrical shaft **2** having an outer surface;

b) a hub **8** having an axial bore defining a wall in the hub and having a longitudinal keyway formed in an inner surface thereof, the keyway having a bottom surface, the hub being disposable on the shaft to define a maximum distance from the keyway bottom surface to the outer surface; and

c) a tapered locking key **16** (taper shown in Figure 2) for insertion into the keyway between the keyway bottom and the shaft surface, the key having a pre-insertion maximum height greater than the maximum distance such that the shaft is deformed by the insertion, whereby the hub is rotationally and axially secured onto the shaft (Figures 1-4, page 1 lines 59-62).

4. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Preston, Sr. (USPN 1,560,399).

As to claim 13, Preston, Sr. discloses an apparatus for securing a hub to a shaft, comprising:

a) a cylindrical shaft **22** having an outer surface;

b) a hub **20** having an axial bore defining a wall in the hub and having a longitudinal keyway formed in an inner surface thereof, the keyway having a bottom

surface, the hub being disposable on the shaft to define a maximum distance from the keyway bottom surface to the outer surface; and

c) a tapered locking key **10** for insertion into the keyway between the keyway bottom and the shaft surface, the key having a pre-insertion maximum height greater than the maximum distance such that the shaft is deformed by the insertion, whereby the hub is rotationally and axially secured onto the shaft (Figures 3-9).

Conclusion

The prior art made of record and not relied upon is considered pertinent to the applicant's disclosure. The following patents show the state of the art with respect to shaft-hub assemblies:

Kindelmann et al. (USPN 1,866,112) and Anderson (USPN 4,929,118) are cited for pertaining to assemblies having a key having maximum height greater than a distance between a shaft and a hub.

Dyett (USPN 1,221,709) is cited for pertaining to assemblies having a deformable hub and key.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Ferguson whose telephone number is (703)308-8591. The examiner can normally be reached on M-F (7:30-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne H. Browne can be reached on (703)308-1159. The fax phone numbers for the organization where this application or proceeding is assigned are

(703)872-9326 for regular communications and (703)872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-1114.

MPF
August 8, 2003

Lynne H. Browne
Supervisory Patent Examiner
Group Art Unit 3679